

A new species of *Monechma* Hochst. (Acanthaceae) from South Africa

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Monechma saxatile J. Munday, a new species from the north-western Cape Province, South Africa, is described. It is distinguished by its terete, channelled, linear leaves and T-shaped or anvil-shaped hairs. Distinguishing characteristics of the species are illustrated and a distribution map is given.

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Monechma saxatile J. Munday, 'n nuwe spesie uit noordwes-Kaapprovinsie word beskryf. Dit is uitgeken deur sy tereet, gekanaliseerd lineêre blare en T- of aambeeldvormige hare. Onderskeidende kenmerke word geïllustreer en 'n verspreidingskaart word verskaf.

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Introduction

Studies in the genus *Monechma* Hochst. have revealed a number of undescribed species from southern Africa. One of them is described here and compared with closely related species.

Description

Monechma saxatile J. Munday, sp. nov. *M. spartioidis* (T. Anders.) C.B.Cl. et *M. incano* (Nees) C.B.Cl. affinis et sine dubio his speciebus proxima, a *M. spartioides* tomentis T-formibus vel incudiformibus, a *M. incano* foliis linearibus teretibus, et trichomatibus asymmetricis aliisque notis haud aegre distinguitur.

Frutex ramulosus circa 600 mm altus. Cortex fumeus, rimis et fissuris. Ramuli rigidi, subspinosi, juventute incani. Folia opposita, saepe aggregata in brachyblastis lateralibus, teretia, linearia, ad 6–15(19) × 0,7–1,0 mm, breviter denseque incana pilis cretaceis vel cinereis T-formibus vel incudiformibus praecipue juventute, interdum glabriuscula vetustate, leviter vel manifeste canaliculata in pagina adaxiali costa distincta, aliquando plana, apicibus rotundatis obtusis vel interdum acutis, gradatim in basin sessilem contracta. Flores axillares solitarii, breviter pedicellati, 17 mm longi, pedicelli 1–3 mm longi; bracteola subulata vel lineari-acuminata, 2–3 mm longa. Calycis tubus 1–2 mm longus, lobi anguste ovati vel triangulati acuminati interdum apicibus productis, 4–8 mm longi in statu florendi, persistentes et protenti in statu fructificandi, lobo postico ceteris angustiore et nonnunquam minore, pilis incudiformibus extus et strictis acclivibus intus. Corolla bilabiata, alba, tubus cum labio postico plus minusve 15 mm longus extus pilis conspersus; labio superiore apice bifido, cucullato, binis sacculis parvis prope basin, tumoribus pilosis (staminodia) superpositis; labio inferiore trilobato, manifeste nervato, sacculo nectarifero 1,5 mm longo × 2 mm lato prope basin tubi os sacculi prominentia parva pilosa (staminodium) in medio marginis. Stamina 2, staminodia 3, filamenta basin versus pilosa. Ovarium plus minusve conoideum, glabrum, sessili disco basin cingenti, biloculare, ovula 2 in quoque loculo superposita. Capsula supra stipitem subellipsoidea, aliquantum rostrata, plus minusve 13 mm longa, abortu saepissime 2-sperma, raro monosperma, parte compressa stipitiformi circa 6 mm longa. Semina lenticularia vel discoidea laevia.

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TYPE. — Cape Province about 8 km north of Pofadder, J.P.H. Acocks 14394 (PRE, holotype; K, isotype) (Figure 1).

Much-branched shrub about 600 mm high. *Bark* dark grey, cracked and fissured. *Branches* stiff, almost spiny, hoary when young. *Leaves* opposite, often crowded on short lateral shoots, linear, terete, 6–15(19) × 0,7–1,0 mm, white- or grey-hairy with a short, dense indumentum of T-shaped or anvil-shaped hairs, especially when young, some-

times becoming glabrescent with age, slightly or distinctly channelled on adaxial surface, with midrib prominent, occasionally flat, rounded and blunt at apex or sometimes acute, tapering to a sessile base. *Flowers* axillary, solitary, shortly pedicellate, 17 mm long, pedicel 1–3 mm long; bracteole awl-shaped or linear-acuminate, 2–3 mm long.

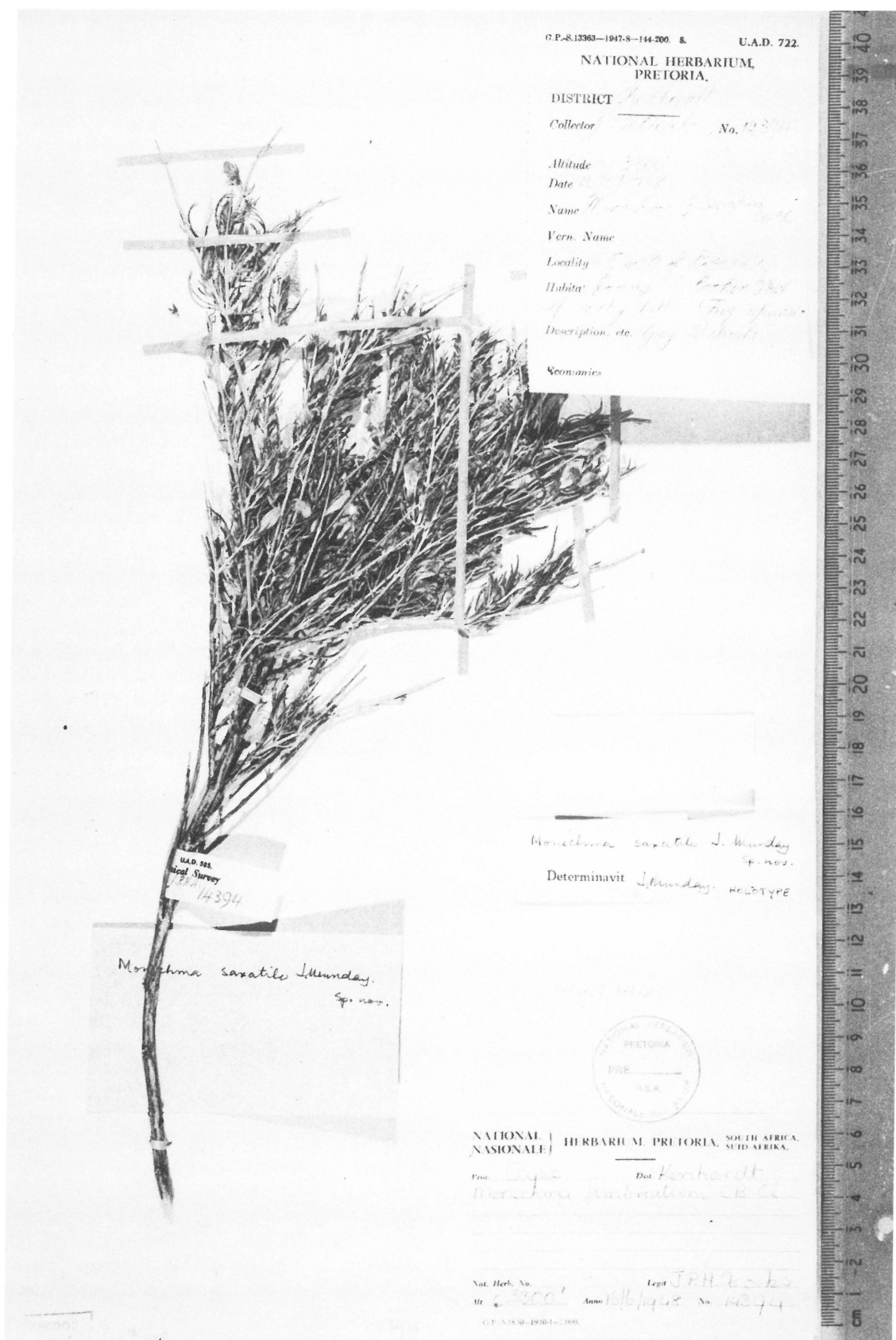


Figure 1 Holotype of *Monechma saxatile* (Acocks 14394).

Calyx tube 1–2 mm long; lobes narrowly ovate- or triangular-acuminate, sometimes with long tips 4–8 mm long in flower, persistent and lengthening in fruiting state, adaxial lobe narrower than rest and often shorter, hairy on outside with anvil-shaped hairs and on inside with straight, upward-sloping hairs. *Corolla* 2-lipped, white, tube together with adaxial lobe approximately 15 mm long, hairy on outside; upper lip hooded, 2-fid at apex, with two small pouches near base, surmounted by hairy swellings (staminodes); lower lip 3-lobed, prominently veined, with a nectar pouch, 1.5 mm long \times 2 mm wide below it near base of tube, mouth of pouch with a small, hairy prominence in middle of inside rim (staminode). *Stamens* 2, staminodes 3, filaments hairy at base. *Ovary* approximately conical, glabrous, surrounded at base by subsessile disc, bilocular, 2 ovules in each locule, with one ovule above the other. *Capsule* subellipsoid above stipe, somewhat rostrate, approximately 13 mm long, through abortion mostly 2-seeded, rarely 1-seeded, with part flattened into stipe about 6 mm long. *Seeds* lens-shaped or discoid, smooth.

Distribution

The first record of this interesting species was made by C. Thorne, who collected it in the gneiss hills around Pofadder

in October, 1939. Nine years later, J.P.H. Acocks collected it in the rocky hills of the Orange River Broken Veld, 8 km north of Pofadder; on 16 June 1948, recording that the grey, 2 ft shrubs were 'frequent upwards' (presumably towards the tops of the rocky hills), at an altitude of approximately 1000 m. The species was not collected again, as far as is



Figure 2 Type locality of *Monechma saxatile*, 8 km north of Pofadder.

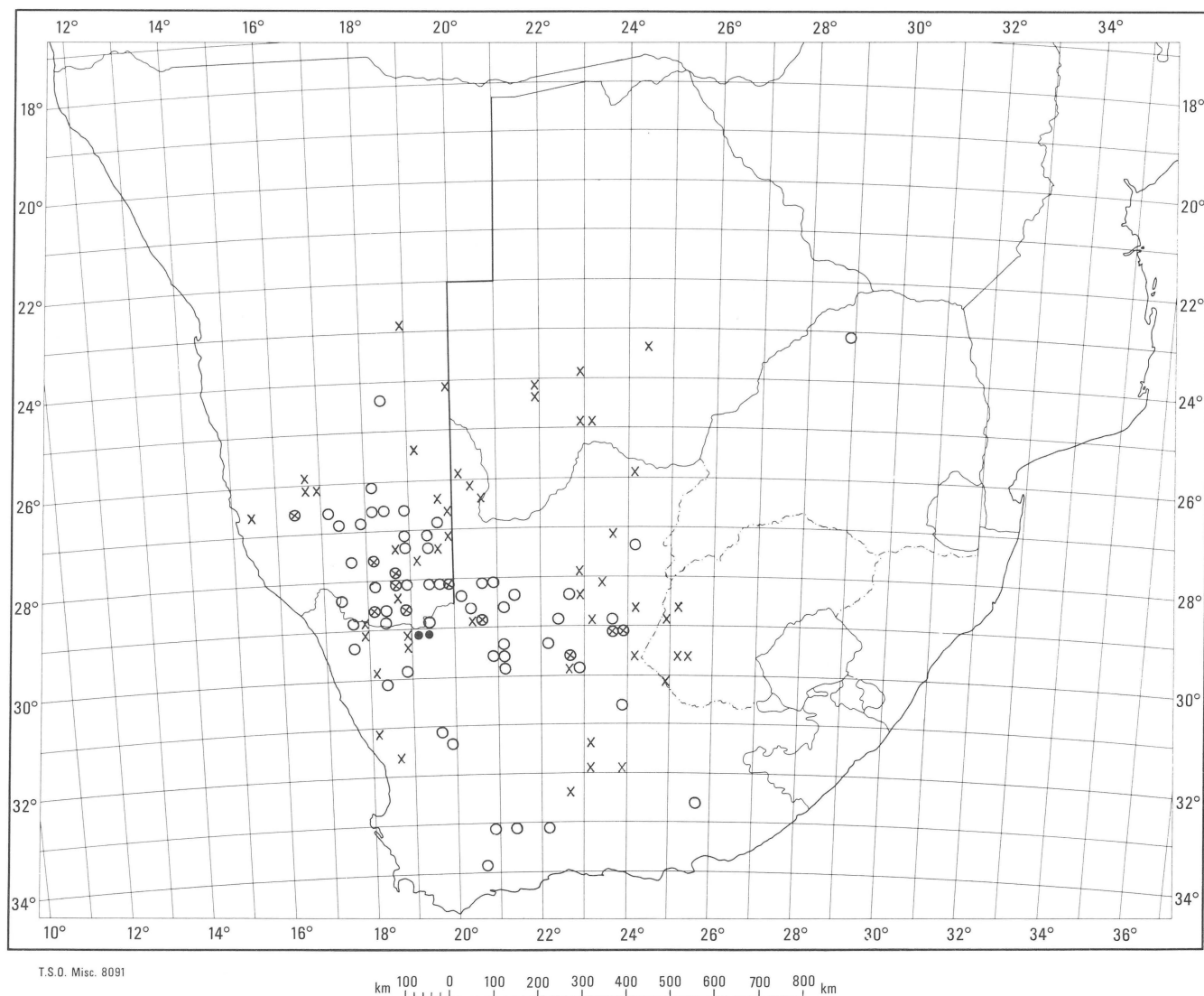


Figure 3 Distribution of *Monechma spartioides* (○), *M. incanum* (×) and *M. saxatile* (●). Localities where both *M. spartioides* and *M. incanum* occur are indicated thus (⊗).

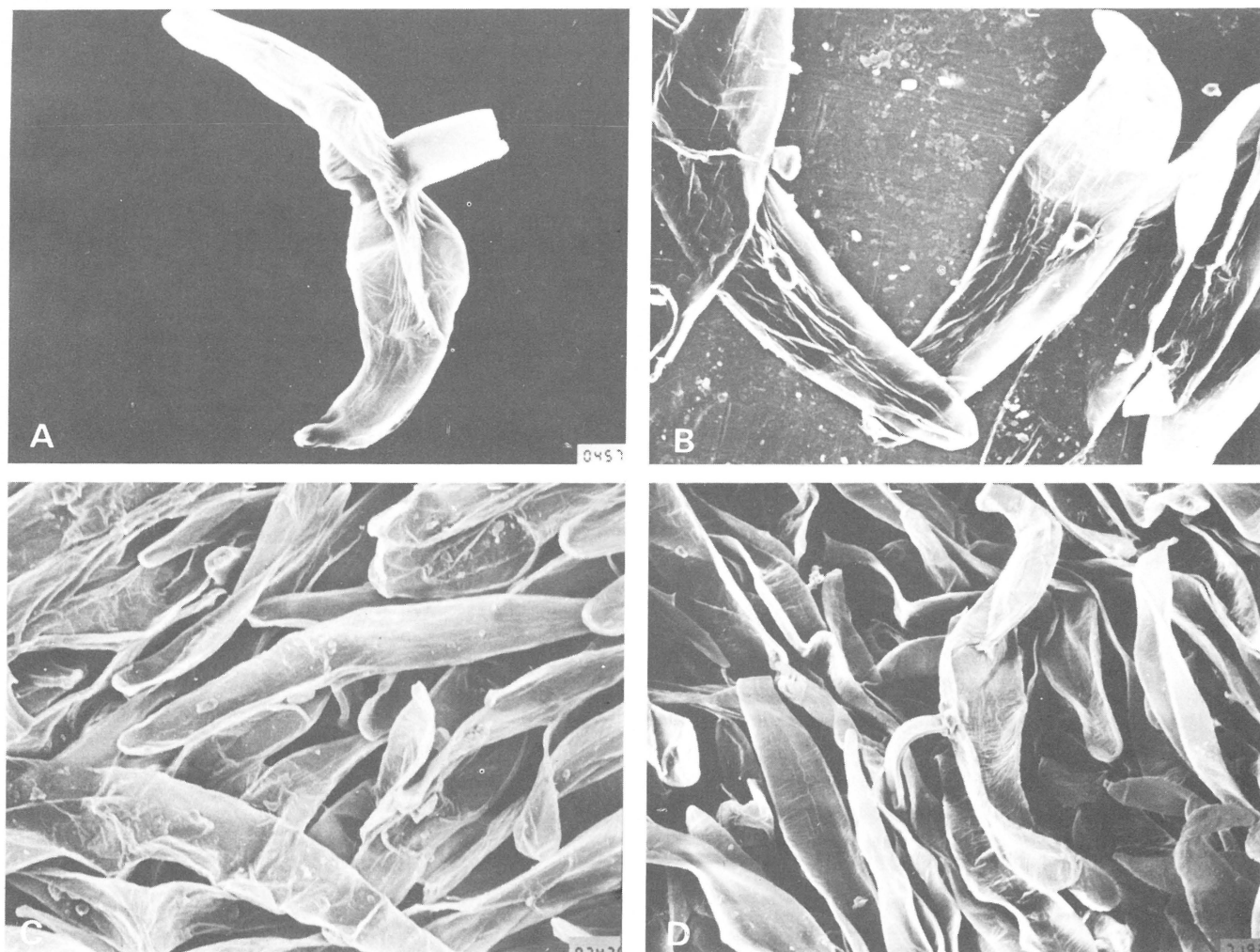


Figure 4 Scanning electron micrographs of trichomes of *M. incanum*. (A) Head of T-shaped trichome attached more or less symmetrically to shaft. $\times 500$ (Wisura 2261). (B) Trichome heads after soaking in water, showing lack of ornamentation. $\times 650$ (Wisura 2261). (C) General view of T-shaped trichomes. $\times 325$ (Wisura 2261). (D) Typical T-shaped trichome (centre) of *M. incanum*. $\times 325$ (Munday 1138).

known, until August 1982, when E.J. van Jaarsveld and J. Patterson found it on the 'south slope, below krantz' of Groot Pellaberg, also in the Pofadder district.

It is obviously a xerophytic plant that grows in very arid, rocky areas and the specific epithet *saxatile* (dwelling among rocks) indicates the nature of the type locality (Figure 2).

Specimens examined

CAPE. — 2919 (Pofadder): Groot Pellaberg (—AA), Van Jaarsveld & Patterson 6740 (NBG); 8 km north of Pofadder (—AB), Acocks 14394 (PRE, holo; K); gneiss hills, Pofadder, Thorne sub S. Afr. Museum no. 59166 (SAM).

Discussion

Although only known from three collections, *M. saxatile* is considered to be sufficiently distinct to be accorded specific status. The bark and distinctive grey indumentum resemble those of *M. incanum*, a species which does not have terete and channelled leaves. At the microscopic level, the two species are immediately distinguished by their different trichome types. There is a certain degree of variation within each species but examination of the great volume of material available for study of *M. incanum* (a widespread and fairly common species in dry areas — see Figure 3) has shown quite clearly that there is a trichome-type that is typical of the species. This consists of a T-shaped hair having a short

shaft and a relatively long crossbar which is attached to the shaft at approximately the middle i.e. more or less symmetrical. The head of this hair is not sculptured or ornamented in any way (Figure 4). Only four herbarium sheets of

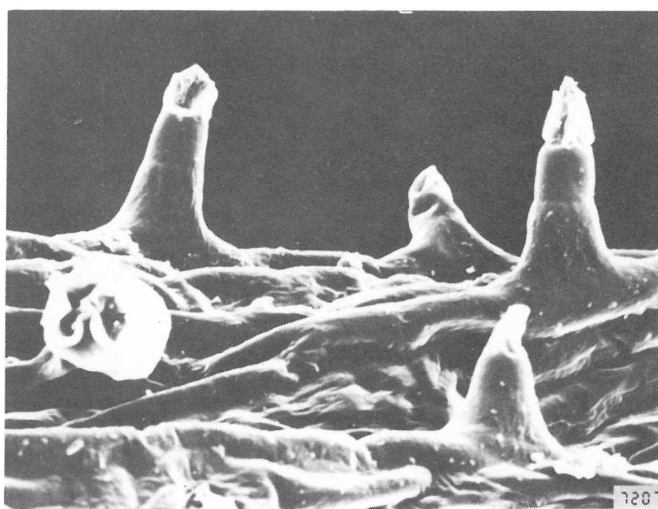


Figure 5 Glandular papillae in *Monechma spartioides*. $\times 500$ (Leistner 2345).

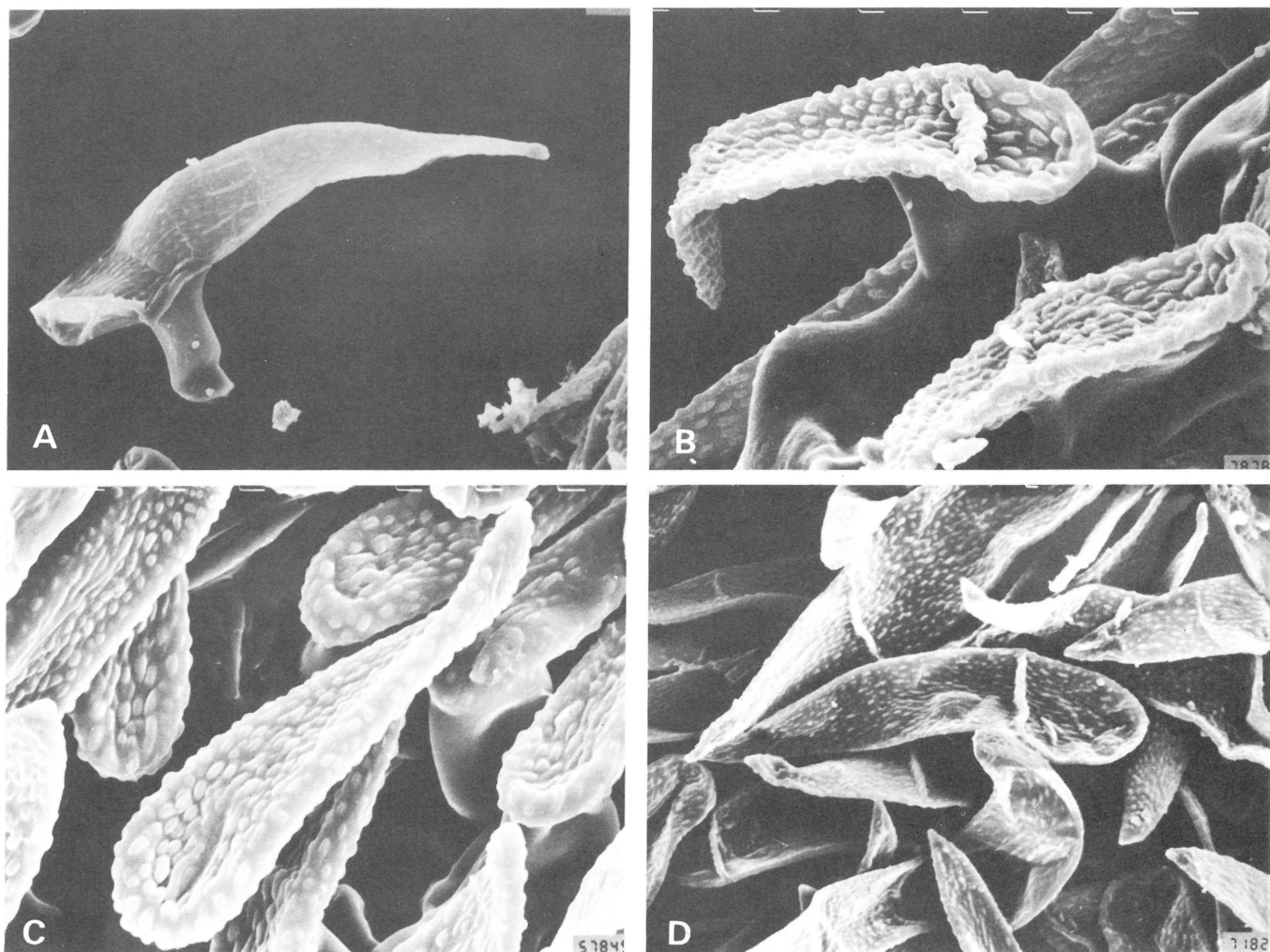


Figure 6 Scanning electron micrographs of trichomes of *Monechma saxatile*. (A) Scraped-off trichome showing asymmetrical attachment of head to shaft. $\times 650$ (Acocks 14394). (B) Typical anvil shape of trichome. $\times 1300$ (Van Jaarsveld & Patterson 6740). (C) Trichome heads showing distinct ornamentation. $\times 975$ (Acocks 14394). (D) General view of anvil-shaped trichomes. $\times 500$ (Van Jaarsveld & Patterson 6740).

M. saxatile have been available for study and a greater variation of trichome-type is seen than in *M. incanum*, mostly confined to the size of the trichome and the density of the indumentum. There is, however, also a wider range of trichome-shape than in *M. incanum*, but the asymmetrically-attached, ornamented head that can be considered typical of *M. saxatile* (Figure 6) does not occur in *M. incanum*. Terete leaves are sometimes encountered in *M. spartioides* but they are then usually glandular-hairy or subglabrous (Figure 5) and lack the characteristic hairs of *M. saxatile*.

It is possible that *M. saxatile* is the product of hybridization between *M. incanum* and *M. spartioides* in a past era, but even if of hybrid origin, *M. saxatile* seems to maintain itself

as a species and no specimens showing intermediate stages between the trichome types have been seen.

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